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Holliday et al.

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(54) **CORNEAL INLAY DESIGN AND METHODS OF CORRECTING VISION**

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(52) **U.S. Cl.**
CPC *A61F 2/147* (2013.01)
USPC **623/5.11**

(58) **Field of Classification Search**
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,714,721 A 8/1955 Stone, Jr.
3,091,328 A 5/1963 Leonardos
3,168,100 A 2/1965 Rich
3,343,657 A 9/1967 Speshyock
3,379,200 A 4/1968 Pennell
3,482,906 A 12/1969 Volk
3,743,337 A 7/1973 Crary
3,770,113 A 11/1973 Thomas
3,879,076 A 4/1975 Barnett
3,950,315 A 4/1976 Cleaver
3,996,627 A 12/1976 Deeg et al.
4,030,480 A 6/1977 Meyer
4,037,604 A 7/1977 Newkirk

(Continued)

FOREIGN PATENT DOCUMENTS

DE 3208729 A1 9/1983
EP 0308077 A2 3/1989

(Continued)

OTHER PUBLICATIONS

Dishler et al.; U.S. Appl. No. 12/861,656 entitled "Methods and Devices for Forming Corneal Channels," filed Aug. 23, 2010.

(Continued)

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(57) **ABSTRACT**

Methods of designing corneal implants, such as inlays, to compensate for a corneal response, such as epithelial remodeling of the epithelial layer, to the presence of the implant. Additionally, methods of performing alternative corneal vision correction procedures to compensate for an epithelial response to the procedure. Methods of compensating for a corneal response when performing a vision correction procedure to create a center near region of the cornea for near vision while providing distance vision peripheral to the central near zone.

2 Claims, 10 Drawing Sheets